

AIR FORCE AUDIT AGENCY



FOREIGN MILITARY SALES REFUELING



AUDIT REPORT

F2009-0002-FC2000

18 May 2009

INTRODUCTION

The *Arms Export Control Act* authorizes both the Foreign Military Sales (FMS) and Foreign Government Support (FRG) program to provide in-flight refueling support to foreign governments. Under FMS, the foreign government pays all costs for tanker flying hours and offloaded fuel. Conversely, under the FRG program, the foreign government receives air refueling support (tanker flying hours) free of charge but must pay for offloaded fuel. During Fiscal Year (FY) 2007, the Air Force billed foreign customers over \$48.6 million in flying hour costs and fuel associated with in-flight refueling missions.

OBJECTIVES

We performed this audit because of the high cost associated with aerial refueling and the vital role of working effectively with foreign customers. The objective was to determine whether Air Force personnel effectively managed in-flight refueling of foreign customers. Specifically, we determined whether Air Force personnel properly and timely recorded in-flight refueling mission data, processed flying hour claims for reimbursement, and accurately prepared annual flying hour cost reimbursement rates.

CONCLUSIONS

Air Force personnel could improve in-flight refueling of foreign customers. Specifically, unit refueling personnel did not properly record in-flight refueling mission data. Although, Air Mobility Command (AMC) personnel accurately processed flying hour claims for reimbursement, they did not process the claims timely. Additionally, Air Force personnel used an inaccurate FY 2008 composite flying hour rate to calculate reimbursements. To illustrate:

- Unit refueling personnel did not submit transactions for 472,509 gallons of fuel valued at over \$1.2 million and did not identify discrepancies between refueling documents. Properly billing FMS and FRG customers for all refueling transactions would increase Air Force reimbursements by \$6.5 million over the period reviewed and the Future Year Defense Program (FYDP). (Tab A, page 1)

Executive Summary

- AMC personnel did not timely process all flying hour claims for reimbursement. Timely reimbursement would return \$1.6 million of Air Force funding for other current valid mission requirements. (Tab B, page 5)
- AMC personnel did not validate the FY 2008 KC-135 composite flying hour rate. The incorrect formula did not fully reimburse the Air Force for refueling support and would have resulted in under billing FMS customers \$150,920 from FY 2008 through the FYDP. (Tab C, page 7)

RECOMMENDATIONS

We made three recommendations to improve controls and management over in-flight refueling of foreign customers. (Reference the individual Tabs for specific recommendations.)

MANAGEMENT'S RESPONSE

Management officials agreed with the issue, potential monetary, and actions planned are responsive.



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BACKGROUND

Base operations personnel use Tanker Activity Reports (Air Force Forms 3578) and Aerial Tanker In-Flight Issue Logs (DD Forms 791) to document in-flight refueling. The aircraft commander completes a Tanker Activity Report for each flight providing an audit trail of tanker flights (sorties) and the boom operator completes an Aerial Tanker In-Flight Issue Log to document aircraft refueled during the mission. Air Force guidance¹ assigns the base Wing Refueling Document Control Officer (WRDCO) the responsibility of reviewing completed Issue Logs for accuracy before forwarding them to the Petroleum, Oil, and Lubricants Resource Control Center for processing into the Fuels Automated System Enterprise Server (FES). Tanker Activity Reports and Issue Logs contain multiple corresponding fields allowing the WRDCO to account for all fuel dispensed on refueling missions.



Air Force guidance² designates AMC as the Air Force manager for air mobility and tanker refueling support. The AMC Current Operations Division (AMC/A3O) provides policy and guidance for Air Force aerial refueling operations. As the line managers and financial analysts for security assistance air refueling cases, AMC Financial Services Branch (AMC/FMFF) personnel use data from the FES to complete the refueling billing process for FMS and FRG customers.

¹ Air Force Manual 23-110, *USAF Supply Manual*, Volume 1, Part 3, Chapter 1, 1 January 2009.

² Air Force Instruction 11-221, *Air Refueling Management*, 1 November 1995.

Tab A

In-Flight Refueling Data

AUDIT RESULTS 1 – IN-FLIGHT REFUELING DATA

Condition. Air Force personnel did not properly record in-flight refueling mission data. Specifically, unit refueling personnel did not submit all FMS and FRG refueling documents to the WRDCO for entry into FES. Additionally, personnel could improve the accuracy of FES source refueling documents for FMS and FRG customers. To illustrate:

- Fuel Transactions. Base personnel at six of eight locations reviewed did not record FMS and FRG refueling transactions for approximately 472,509 (4.4 percent) of 10.8 million gallons of fuel valued at \$1.2 million (Table A-1).

Unit	Total Refueling (Gallons)	Unbilled Fuel Quantity (Gallons)		Total Amount Unbilled	
		Transaction Type		Quantity (Gallons)	Value
		FMS	FRG		
60 AMW	3,184,030	19,179	34,343	53,522	\$136,330
92 ARF	2,121,903	4,701	105,807	110,508	263,240
305 AMW	3,842,334	0	97,927	97,927	265,083
319 ARW	1,299,959	15,746	83,985	99,731	267,498
452 AMW	60,594	13,328	1,493	14,821	31,717
909 ARS	251,108	30,627	65,373	96,000	243,321
Total	10,759,928	83,581	388,928	472,509	\$1,207,189

Table A-1. Unbilled Refueling Transactions.

- FES Data Accuracy. A comparison of Tanker Activity Report data to In-Flight Issue Logs identified 77 discrepancies related to 61 (8.8 percent) of 696 Tanker Activity Reports reviewed (Table A-2). To illustrate, one of the 26 fuel quantity discrepancies identified a Tanker Activity Report showing 24,700 pounds of fuel off-loaded but the In-Flight Issue Log showed 20,700 pounds were dispensed.

Type of Discrepancy	Number of Discrepancies
Number of FMS Aircraft Receiving Fuel	36
Fuel Quantity	26
Mission Number or Date	13
Not Coded as FMS or FRG	2
Total Discrepancies	77

Table A-2. Data Discrepancies.

Cause. This occurred because AMC guidance did not require the WRDCO to reconcile Aerial Tanker In-Flight Issue Logs to other refueling records such as the Tanker Activity Report to verify an accurate accounting of all fuel dispensed during tanker missions.

Impact. As a result, base personnel did not correctly process all FMS and FRG refueling transactions for billing. We estimate the Air Force could increase reimbursements from foreign customers by \$1.2 million for the period reviewed and an additional \$5.3 million³ over the FYDP. Additionally, increasing the accuracy of refueling data input into FES decreases the likelihood foreign customers will dispute or reject fuel bills, facilitates resolution of disputed bills, and leads to fewer billing delays.

Recommendation A.1. The Director, AMC Air, Space, and Information Operations (AMC/A3) should direct AMC/A3O to issue policy requiring unit WRDCOs to perform a reconciliation of Aerial Tanker In-Flight Issue Logs with other refueling records such as the Tanker Activity Report for FMS and FRG refueling missions to validate the accuracy of data entry.

Management Comments. AMC/A3 concurred with the audit result, potential monetary benefits, and recommendation and stated: “AMC/A3 personnel, upon being notified of the audit results, began working with the base-level WRDCOs to develop reconciliation procedures to validate all foreign transactions have been properly identified and entered into the billing system.

“AMC/A3 provided policy to all locations per a 20 March 2009 email that contained the following: ‘In line with Air Force Manual 23110 requirements, all units operating tanker aircraft will develop and implement a process ensuring the WRDCO reconciles the Tanker Activity Report to the corresponding In-Flight Issue Log, validating all transactions have been properly identified and entered into the billing system. The WRDCO will review the forms for accuracy and obtain missing data prior to submission for processing.’ These local procedures will need to remain in place until the new Global Decision Support System II application is upgraded to allow In-Flight Issue Logs to be entered in with the Tanker Activity Reports for an automated review. Closed.”

Evaluation of Management Comments. Management officials agreed with the issue, potential monetary benefit, and actions taken are responsive.

³ AMC/FMFF personnel stated the number of flying hours would remain relatively constant into the future. We estimated the potential savings over the FYDP in two steps. First, we multiplied the current year total unbilled fuel for the 92d Air Refueling Wing (ARW), 733d Air Mobility Squadron, 452d Air Mobility Wing (AMW), and 305 AMW (\$803,361) by six for a total of \$4,820,166. Next, due to changing mission requirements at 319 ARW, we only included a prorated amount of \$445,831 for Fiscal Years 2009 through 2011 resulting in a final potential savings total of \$5,265,997 million. We did not extrapolate potential savings for 60 AMW due to the small number of errors. We reported potential monetary benefits in installation-level reports for corrective action.

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BACKGROUND

FMS customers reimburse the Air Force for tanker flying hours through financial arrangements in a pre-established Letter of Offer and Acceptance with the foreign country. At the beginning of each fiscal year, or upon establishment of a new FMS case, AMC/FMFF personnel prepare an initial obligation document to set aside FMS customer funds held by the US Treasury for FMS flying hour cost reimbursement.



During the year, AMC guidance⁴ requires AMC/FMFF personnel to coordinate periodically with major command (MAJCOM) financial management personnel who prepare reimbursement documents, based on fuel and flying hours provided, for return to AMC/FMFF. AMC/FMFF personnel, in-turn, link the FMS customer's obligation document with the providing MAJCOM's reimbursement document and submit a billing package to the Defense Finance and Accounting Service for processing. DoD guidance⁵ requires agencies to report accrued expenditures to the Defense Finance and Accounting Service within 30 days of occurrence (date of performance).

AUDIT RESULTS 2 – FLYING HOUR BILLING

Condition. AMC personnel did not timely process flying hour claims for reimbursement. Specifically, from June 2007 through May 2008, AMC/FMFF personnel processed all 30 randomly selected flying hour claims more than 30 days after the Air Force provided refueling support (Table B-1). For example, the Air Force Reserve Command (AFRC) had unreimbursed transactions valued at \$260,980 that exceeded an average of 180 days.

⁴ AMC Foreign Military Sales Handbook, 30 September 2005.

⁵ DoD Financial Management Regulation (FMR) 7000.14R, Volume 15, *Security Assistance Policy and Procedures*, Chapter 8, Billing and Reimbursement, paragraph 080102B, August 2000.

Tab B

Flying Hour Billing

Age Category	Total Claims	MAJCOM ⁶					Total Flying Hour Value
		AFRC	AMC	NGB	PACAF	USAFE	
		Flying Hour Value					
30-90 Days	13	\$69,850	\$562,429	\$2,494	\$0	\$112,016	\$746,789
91-180 Days	9	0	413,436	74,149	13,803	32,468	533,856
180+ Days	8	260,980	0	6,718	48,221	39,168	355,087
Total	30	\$330,830	\$975,865	\$83,361	\$62,024	\$183,652	\$1,635,732

Table B-1. Timely Billing.

Cause. Although AMC/FMFF personnel developed a tracking system to identify the time it takes to accomplish key aspects of the reimbursement process, they had not established standardized procedures to ensure they received appropriate reimbursement documents from MAJCOM financial management personnel in a timely manner.

Impact. Timely reimbursement would return \$1.6 million of Air Force funding for other current valid mission requirements.

Recommendation B.1. The AMC Financial Manager/Comptroller should coordinate with applicable MAJCOM financial managers to formulate and implement a standardized process for obtaining required reimbursement documentation in a timely manner.

Management Comments. The AMC Comptroller (HQ AMC/FM) concurred with the audit result and recommendation and stated: “Concur. HQ AMC/FMFF personnel will coordinate with the MAJCOM financial managers to develop standardized procedures for obtaining reimbursement documentation in a timely manner and the appropriate course of action to be taken if those procedures are not followed. AMC/FMFF is currently using a self-developed Excel spreadsheet to track timeliness and will expand this tracking to include the actions taken to obtain the documents from the MAJCOMs in accordance with the procedures developed. Estimated completion date is 20 July 2009.”

Evaluation of Management Comments. Management officials agreed with the issue, and actions planned are responsive.

⁶ The applicable MAJCOMs include AFRC, AMC, National Guard Bureau (NGB), Pacific Air Forces (PACAF), and United States Air Forces in Europe (USAFE).

BACKGROUND

The Air Force Cost Analysis Agency (AFCAA) develops flying hour rates for each aircraft mission design and series, to include the KC-10, KC-135R, and KC-135T tanker aircraft. AFCAA personnel provide AMC/FMFF the FMS flying hour rates each year for billing FMS customers.

In FY 2008, AMC personnel requested assistance from AFCAA to prepare a composite rate for the KC-135R/T models to ensure the Air Force charges the same rate regardless of which KC-135 model provides tanker support. In developing the new rate, AFCAA personnel developed a new costing methodology software program using a Microsoft Access database to calculate flying hour rates for each individual Mission Design Series, as well as a composite rate for the KC-135R/T models.

AUDIT RESULTS 3 – FLYING HOUR RATES

Condition. Air Force personnel did not validate the accuracy of the FY 2008 KC-135 composite flying hour rates. Specifically, AMC personnel used an incorrect composite FMS flying hour billing rate for the first 7 months of FY 2008 for the KC-135R and KC-135T aircraft. The individual KC-135R flying hour rate was \$9,426 and the KC-135T rate was \$9,440. However, the AFCAA calculated composite rate for both the KC-135R/T models was below both rates at \$9,414.

Cause. This occurred because AMC/FMFF personnel did not have an effective process to test and validate AFCAA provided flying hour rates for reasonableness and completeness prior to relying on the rates.

Impact. While the new Microsoft Access database table provides greater continuity and flexibility in computing the FMS flying hour rates, the incorrect formula did not fully reimburse the Air Force for refueling support provided to FMS customers by \$21,560 in FY 2008 (1,540 flying hours) and an additional \$129,360 over the FYDP.⁷

Management Corrective Action. During the course of the audit, AMC personnel coordinated with AFCAA to correct the KC-135 composite rate formulas in the database.

⁷ AMC/FMFF personnel stated the number of flying hours would remain relatively constant into the future. Further, if management did not develop procedures to test for data reasonableness, this or potentially more costly errors could go undetected. We estimated the potential savings over the FYDP by taking the error rate of \$14 multiplying the total KC-135 hours flown during FY 2008 providing a base year error of \$21,560. Multiplying the base year times six equals the \$129,360 FYDP projection.

Tab C

Flying Hour Rates

Further, AMC personnel resubmitted all incorrect flying hour bills previously processed. Therefore, this report does not contain any recommendations to correct the under billed transactions.

Recommendation C.1. The AMC Financial Manager/Comptroller should direct AMC/FMFF branch personnel to develop an annual independent testing procedure to validate AFCAA provided flying hour rates for reasonableness and completeness prior to relying on the rates.

Management Comments. HQ AMC/FM concurred with the audit result, potential monetary benefit, and recommendation and stated: “Concur. After the FMFF financial analyst performs the initial review, AMC/FMFF personnel will identify an independent party to perform a final review of the flying hour rates for reasonableness and completeness prior to relying on the rates for billing foreign customers. Estimated completion date is 20 July 2009.”

Evaluation of Management Comments. Management officials agreed with the issue, and actions planned are responsive.

AUDIT SCOPE

Audit Coverage. We performed this audit at Headquarters AMC and eight locations (Appendix II). We conducted the audit from June through November 2008 using documents dated from June 2007 to September 2008. We completed audit fieldwork in November 2008 and provided a draft report to management in March 2009. To accomplish our objectives, we performed the following audit work and conducted tests as specified below:

- **In-Flight Refueling Data.** To determine if base-level personnel properly documented FMS in-flight customer refueling, we compared data from FES, AMC Air Refueling Tracker (AMCART), and Global Decision Support System II (GDSS) to hardcopy Tanker Activity Reports and Aerial Tanker In-Flight Issue Logs.
- **Billing.** To determine if personnel accurately processed fuel and flying hour claims for reimbursement, we compared Aerial Tanker In-Flight Issue Logs to the AMC FY 2007 Ops Log (used by AMC to track the billing of FMS customers). Additionally, we determined the average number of days from the service date to the billing date to validate personnel billed timely.
- **Flying Hour Cost Rates.** To determine if personnel accurately validated annual flying hour cost rates, we reviewed the cost rates developed by AFCAA. Additionally, we compared DoD FMR guidelines to the Microsoft Access database used by AFCAA for flying hour rate calculation.

Sampling Methodology. We performed multiple samples during the course of the audit.

- **In-Flight Refueling Data.** To validate personnel properly documented in-flight FMS refueling, we reviewed all FMS refueling transactions occurring between 1 June 2007 and 31 May 2008 at seven locations. Additionally, we reviewed all FMS refueling transactions for 90 statistical sampled days occurring between 1 June 2007 and 31 May 2008 for the eighth location.
- **Billing.** To determine the accuracy and timeliness of processing reimbursement bills, we used the WINSTAT sampling program to select a random sample of 30 FMS fuel bills and 30 FMS flying hour bills from a population of 770 transactions.

Computer-Assisted Auditing Tools and Techniques. We used computer-assisted auditing tools and techniques extensively. Specifically, we used Microsoft Excel pivot tables to determine the number of transaction lines, fuel quantity, and fuel cost processed into FES by location to identify the locations with the greatest magnitude to perform the audit. Additionally, we used nested “IF” statements to calculate the dollar amount of fuel

Audit Scope and Prior Audit Coverage

and flying hour cost discrepancies based on the mission date and type of refueling aircraft. Further, we used Computer-Assisted Auditing Tools and Techniques to review all electronic data entered into AMCART and the GDSS for comparison to FES at Fairchild, McGuire, and Travis AFBs.

Data Reliability. We performed this audit using data from the FES, AMCART, and GDSS. Although we did not assess the systems' general or application controls, we established data accuracy by validating output data to manual source documents. Specifically, we compared the Aerial Tanker In-Flight Issue Logs generated in AMCART and Tanker Activity Reports from GDSS to data from FES. Additionally, we reviewed output products for obvious errors, reasonableness, and completeness. Based on these tests, we concluded the data was sufficiently reliable to support audit conclusions and recommendations.

Auditing Standards. We conducted the audit in accordance with generally accepted government auditing standards and, accordingly, included such tests of internal controls as considered necessary. Specifically, we examined procedures, supervision, and documentation controls used to manage FMS in-flight refueling.

PRIOR AUDIT COVERAGE

We did not identify any Air Force Audit Agency, DoD Inspector General, or Government Accountability Office reports issued within the past 5 years that addressed the same or similar objectives as this audit.

RELATED REPORTS

Air Force Audit Agency Report F2007-0006-FBS000, *Foreign Military Sales – Refueling Reimbursements*, 30 October 2006, validated whether the 161st ARW reported fuel and flying hour costs associated with the in-flight refueling of FMS customers. While operations and fuels personnel properly processed reimbursements for fuel, operations personnel did not report flying hours supporting FMS customers for reimbursement. The audit recommendations were addressed to the 161st ARW RDCO.

Locations Audited/ Reports Issued

<u>Organization/Location</u>	<u>Installation-Level Reports Issued</u>
<u>Air Force Reserve Command</u>	
452d Air Mobility Wing March ARB CA	F2009-0011-FBS000 12 January 2009
<u>Air Mobility Command (AMC)</u>	
HQ AMC Scott AFB IL	NONE
60th Air Mobility Wing Travis AFB CA	F2009-0025-FBN000 21 January 2009
92d Air Refueling Wing Fairchild AFB WA	F2009-0042-FBN000 19 March 2009
305th Air Mobility Wing McGuire AFB NJ	F2009-0020-FDN000 17 April 2009
319th Air Refueling Wing Grand Forks AFB ND	F2009-0013-FBN000 20 November 2008
<u>Air National Guard</u>	
185th Air Refueling Wing Sioux City ANG SD	F2008-0104-FBL000 17 September 2008
<u>Pacific Air Forces</u>	
18th Wing Kadena AB, Japan	F2009-0006-FBP000 21 January 2009
<u>United States Air Forces In Europe</u>	
100th Air Refueling Wing RAF Mildenhall, United Kingdom	NONE

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